F. Hamud

1646

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ENTERED

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        RAW SEQUENCE LISTING              DATE: 05/11/2000
        PATENT APPLICATION:  US/09/276,455   TIME: 15:43:20

        Input Set : A:\Fershtl.app
        Output.Set: N:\CRF3\05112000\I276455.raw

  3 <110> APPLICANT: FERSHT, Alan R.
  4        ZAHN, Ralph
  5        ALTAMIRANO, Myriam M.
  7 <120> TITLE OF INVENTION: CHAPERONE FRAGMENTS
  9 <130> FILE REFERENCE: 674508-2001
 11 <140> CURRENT APPLICATION NUMBER: 09/276,455
 12 <141> CURRENT FILING DATE: 1999-03-25
 14 <150> PRIOR APPLICATION NUMBER: 97/02652
 15 <151> PRIOR FILING DATE: 1997-09-26
 17 <150> PRIOR APPLICATION NUMBER: 96/020980
 18 <151> PRIOR FILING DATE: 1996-12-03
 20 <150> PRIOR APPLICATION NUMBER: 9620243.7
 21 <151> PRIOR FILING DATE: 1996-09-26
 23 <160> NUMBER OF SEQ ID NOS: 14
 25 <170> SOFTWARE: PatentIn Ver. 2.1
 27 <210> SEQ ID NO: 1
 28 <211> LENGTH: 27
 29 <212> TYPE: DNA
 30 <213> ORGANISM: Escherichia coli
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 37 <211> LENGTH: 30
 38 <212> TYPE: DNA
 39 <213> ORGANISM: Escherichia coli
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 47 <212> TYPE: DNA
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 57 <213> ORGANISM: Escherichia coli
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 64 <211> LENGTH: 42
 65 <212> TYPE: DNA
 66 <213> ORGANISM: Escherichia coli
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 72 <210> SEQ ID NO: 6
 73 <211> LENGTH: 36
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RAW SEQUENCE LISTING   DATE: 05/11/2000
PATENT APPLICATION: US/09/276,455   TIME: 15:43:20

Input Set : A:\Fersht1.app
Output Set: N:\CRF3\05112000\I276455.raw

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75 <213> ORGANISM: Escherichia coli
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82 <211> LENGTH: 34
83 <212> TYPE: DNA
84 <213> ORGANISM: Escherichia coli
86 <400> SEQUENCE: 7
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91 <211> LENGTH: 36
92 <212> TYPE: PRT
93 <213> ORGANISM: Escherichia coli
95 <400> SEQUENCE: 8
96 Met Arg Gly Ser His His His His His Gly Met Ala Ser Met Thr
97   1               5                   10                  15
99 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Leu Val
100             20                  25                  30
102 Pro Arg Gly Ser
103           35
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107 <211> LENGTH: 186
108 <212> TYPE: PRT
109 <213> ORGANISM: Escherichia coli
111 <400> SEQUENCE: 9
112 Glu Gly Met Gln Phe Asp Arg Gly Tyr Leu Ser Pro Tyr Phe Ile Asn
113   1               5                   10                  15
115 Lys Pro Glu Thr Gly Ala Val Glu Leu Glu Ser Pro Phe Ile Leu Leu
116             20                  25                  30
118 Ala Asp Lys Lys Ile Ser Asn Ile Arg Glu Met Leu Pro Val Leu Glu
119           35                  40                  45
121 Ala Val Ala Lys Ala Gly Lys Pro Leu Leu Ile Ile Ala Glu Asp Val
122         50                  55                  60
124 Glu Gly Glu Ala Leu Ala Thr Leu Val Val Asn Thr Met Arg Gly Ile
125   65                  70                  75                  80
127 Val Lys Val Ala Ala Val Lys Ala Pro Gly Phe Gly Asp Arg Arg Lys
128                 85                  90                  95
130 Ala Met Leu Gln Asp Ile Ala Thr Leu Thr Gly Gly Thr Val Ile Ser
131             100                 105                 110
133 Glu Glu Ile Gly Met Glu Leu Glu Lys Ala Thr Leu Glu Asp Leu Gly
134           115                 120                 125
136 Gln Ala Lys Arg Val Val Ile Asn Lys Asp Thr Thr Thr Ile Ile Asp
137       130                 135                 140
139 Gly Val Gly Glu Glu Ala Ala Ile Gln Gly Arg Val Ala Gln Ile Arg
140 145                 150                 155                 160
142 Gln Gln Ile Glu Glu Ala Thr Ser Asp Tyr Asp Arg Glu Lys Leu Gln
143                 165                 170                 175
145 Glu Arg Val Ala Lys Leu Ala Gly Gly Val
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RAW SEQUENCE LISTING   DATE: 05/11/2000
PATENT APPLICATION: US/09/276,455   TIME: 15:43:20

       Input Set : A:\Fershtl.app
       Output Set: N:\CRF3\05112000\I276455.raw

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151 <212> TYPE: PRT
152 <213> ORGANISM: Escherichia coli
154 <400> SEQUENCE: 10
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158 Leu Arg Gly Val Asn Val Leu Ala Asp Ala Val Lys Val Thr Leu Gly
159   20   25   30
161 Pro Lys Gly Arg Asn Val Val Leu Asp Lys Ser Phe Gly Ala Pro Thr
162   35   40   45
164 Ile Thr Lys Asp Gly Val Ser Val Ala Arg Glu Ile Glu Leu Glu Asp
165   50   55   60
167 Lys Phe Glu Asn Met Gly Ala Gln Met Val Lys Glu Val Ala Ser Lys
168 65   70   75   80
170 Ala Asn Asp Ala Ala Gly Asp Gly Thr Thr Thr Ala Thr Val Leu Ala
171   85   90   95
173 Gln Ala Ile Ile Thr Glu Gly Leu Lys Ala Val Ala Ala Gly Met Asn
174   100   105   110
176 Pro Met Asp Leu Lys Arg Gly Ile Asp Lys Ala Val Thr Ala Ala Val
177   115   120   125
179 Glu Glu Leu Lys Ala Leu Ser Val Pro Cys Ser Asp Ser Lys Ala Ile
180   130   135   140
182 Ala Gln Val Gly Thr Ile Ser Ala Asn Ser Asp Glu Thr Val Gly Lys
183 145   150   155   160
185 Leu Ile Ala Glu Ala Met Asp Lys Val Gly Lys Glu Gly Val Ile Thr
186   165   170   175
188 Val Glu Asp Gly Thr Gly Leu Gln Asp Glu Leu Asp Val Val Glu Gly
189   180   185   190
191 Met Gln Phe Asp Arg Gly Tyr Leu Ser Pro Tyr Phe Ile Asn Lys Pro
192   195   200   205
194 Glu Thr Gly Ala Val Glu Leu Glu Ser Pro Phe Ile Leu Leu Ala Asp
195   210   215   220
197 Lys Lys Ile Ser Asn Ile Arg Glu Met Leu Pro Val Leu Glu Ala Val
198 225   230   235   240
200 Ala Lys Ala Gly Lys Pro Leu Leu Ile Ile Ala Glu Asp Val Glu Gly
201   245   250   255
203 Glu Ala Leu Ala Thr Leu Val Val Asn Thr Met Arg Gly Ile Val Lys
204   260   265   270
206 Val Ala Ala Val Lys Ala Pro Gly Phe Gly Asp Arg Arg Lys Ala Met
207   275   280   285
209 Leu Gln Asp Ile Ala Thr Leu Thr Gly Gly Thr Val Ile Ser Glu Glu
210   290   295   300
212 Ile Gly Met Glu Leu Glu Lys Ala Thr Leu Glu Asp Leu Gly Gln Ala
213 305   310   315   320
215 Lys Arg Val Val Ile Asn Lys Asp Thr Thr Thr Ile Ile Asp Gly Val
216   325   330   335
218 Gly Glu Glu Ala Ala Ile Gln Gly Arg Val Ala Gln Ile Arg Gln Gln

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219            340              345                350
221 Ile Glu Glu Ala Thr Ser Asp Tyr Asp Arg Glu Lys Leu Gln Glu Arg
222           355              360                365
224 Val Ala Lys Leu Ala Gly Gly Val Ala Val Ile Lys Val Gly Ala Ala
225      370              375                380
227 Thr Glu Val Glu Met Lys Glu Lys Lys Ala Arg Val Glu Asp Ala Leu
228 385              390                395                400
230 His Ala Thr Arg Ala Ala Val Glu Glu Gly Val Val Ala Gly Gly Gly
231           405              410                415
233 Val Ala Leu Ile Arg Val Ala Ser Lys Leu Ala Asp Leu Arg Gly Gln
234           420              425                430
236 Asn Glu Asp Gln Asn Val Gly Ile Lys Val Ala Leu Arg Ala Met Glu
237           435              440                445
239 Ala Pro Leu Arg Gln Ile Val Leu Asn Cys Gly Glu Glu Pro Ser Val
240      450              455              460
242 Val Ala Asn Thr Val Lys Gly Gly Asp Gly Asn Tyr Gly Tyr Asn Ala
243 465              470                475                480
245 Ala Thr Glu Glu Tyr Gly Asn Met Ile Asp Met Gly Ile Leu Asp Pro
246           485              490                495
248 Thr Lys Val Thr Arg Ser Ala Leu Gln Tyr Ala Ala Ser Val Ala Gly
249      500              505                510
251 Leu Met Ile Thr Thr Glu Cys Met Val Thr Asp Leu Pro Lys Asn Asp
252           515              520                525
254 Ala Ala Asp Leu Gly Ala Ala Gly Gly Met Gly Gly Met Gly Gly Met
255      530              535                540
257 Gly Gly Met Met
258 545
261 <210> SEQ ID NO: 11
262 <211> LENGTH: 160
263 <212> TYPE: PRT
264 <213> ORGANISM: Escherichia coli
266 <400> SEQUENCE: 11
267 Val Glu Gly Met Gln Phe Asp Arg Gly Tyr Leu Ser Pro Tyr Phe Ile
268 1             5                10                15
270 Asn Lys Pro Glu Thr Gly Ala Val Glu Leu Glu Ser Pro Phe Ile Leu
271           20              25                30
273 Leu Ala Asp Lys Lys Ile Ser Asn Ile Arg Glu Met Leu Pro Val Leu
274           35              40                45
276 Glu Ala Val Ala Lys Ala Gly Lys Pro Leu Leu Ile Ile Ala Glu Asp
277      50              55                60
279 Val Glu Gly Glu Ala Leu Ala Thr Leu Val Val Asn Thr Met Arg Gly
280 65              70                75                80
282 Ile Val Lys Val Ala Ala Val Lys Ala Pro Gly Phe Gly Asp Arg Arg
283           85              90                95
285 Lys Ala Met Leu Gln Asp Ile Ala Thr Leu Thr Gly Gly Thr Val Ile
286           100              105              110
288 Ser Glu Glu Ile Gly Met Glu Leu Glu Lys Ala Thr Leu Glu Asp Leu
289      115              120              125
291 Gly Gln Ala Lys Arg Val Val Ile Asn Lys Asp Thr Thr Thr Ile Ile
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        RAW SEQUENCE LISTING                      DATE: 05/11/2000
        PATENT APPLICATION:  US/09/276,455        TIME: 15:43:20

        Input Set : A:\Fershtl.app
        Output Set: N:\CRF3\05112000\I276455.raw

292     130                   135                 140
294 Asp Gly Val Gly Glu Glu Ala Ala Ile Gln Gly Arg Val Ala Gln Ile
295 145                 150                 155                 160
301 <210> SEQ ID NO: 12
302 <211> LENGTH: 42
303 <212> TYPE: PRT
304 <213> ORGANISM: Escherichia coli
306 <220> FEATURE:
307 <221> NAME/KEY: VARIANT
308 <222> LOCATION: (1)
309 <223> OTHER INFORMATION: Amino acid 1 is Ile, Met, Leu, Val, Ser, Phe or
310       Ala
312 <220> FEATURE:
313 <221> NAME/KEY: VARIANT
314 <222> LOCATION: (5)
315 <223> OTHER INFORMATION: Amino acid 5 is Ile, Leu, Val, Pro or Ala
317 <220> FEATURE:
318 <221> NAME/KEY: VARIANT
319 <222> LOCATION: (8)
320 <223> OTHER INFORMATION: Amino acid 8 is Leu, Glu, Val, His or Ile
322 <220> FEATURE:
323 <221> NAME/KEY: VARIANT
324 <222> LOCATION: (9)
325 <223> OTHER INFORMATION: Amino acid 9 is Glu, Ala, Arg, Leu, Gln or Asn
327 <220> FEATURE:
328 <221> NAME/KEY: VARIANT
329 <222> LOCATION: (12)
330 <223> OTHER INFORMATION: Amino acid 12 is Ala, Val, Ile, Met, Leu, Asn,
331       Ser, Arg, Thr, Gln or Lys
333 <220> FEATURE:
334 <221> NAME/KEY: VARIANT
335 <222> LOCATION: (28)
336 <223> OTHER INFORMATION: Amino acid 28 is Glu, Asp or Gly
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339 <221> NAME/KEY: VARIANT
340 <222> LOCATION: (31)
341 <223> OTHER INFORMATION: Amino acid 31 is Ala, Pro, Ser, Thr, Gly, or Leu
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344 <221> NAME/KEY: VARIANT
345 <222> LOCATION: (32)
346 <223> OTHER INFORMATION: Amino acid 32 is Thr, Ala, Asn, Ser, or Val
348 <220> FEATURE:
349 <221> NAME/KEY: VARIANT
350 <222> LOCATION: (34)
351 <223> OTHER INFORMATION: Amino acid 34 is Val, Leu, Ile, or Ala
353 <220> FEATURE:
354 <221> NAME/KEY: VARIANT
355 <222> LOCATION: (35)
356 <223> OTHER INFORMATION: Amino acid 35 is Val, Leu, Ile, Phe or His
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Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220> to
<223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY   DATE: 05/11/2000
PATENT APPLICATION: US/09/276,455   TIME: 15:43:21

Input Set : A:\Fersht1.app
Output Set: N:\CRF3\05112000\I276455.raw

L:420 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:423 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:426 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:441 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:444 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:447 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13